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FOR

RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES AND INSECTS.

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Quadrupeds in Lincolnshire. By JOHN CORDEAUX, Esq.

Stoat or Ermine.—This graceful and agile but destructive little animal is abundant in this district, and is of much more frequent occurrence than the weasel. In the winter they are sometimes seen mottled white and brown, the latter colour generally predominating; much the larger proportion, however, do not undergo any seasonal change. I have occasionally seen one in our marsh district in the perfect winter or ermine dress. On the 9th of March last I was fortunate in seeing a beautiful ermine, almost perfect in colour. It was hunting over some pasture land, quartering the ground in a systematic manner, after the manner of an experienced pointer, and looking not unlike an animated snow-ball. By keeping well out of sight below the bank, and imitating the squeal of a rabbit, I called this little poacher within a short distance, and had then a favourable opportunity of examining him. He was altogether, excepting the black tip to the tail and a few brown hairs on the thighs, pure white, without any apparent tinge of yellow, and was a remarkably large and handsome specimen of his race. The next day I shot a stoat, in the usual brown summer dress, differing in no respect from what we see in the summer. Can any reader of the 'Zoologist' explain this apparent anomaly in the stoat's dress? Here were two animals in the same parish, at the same level above the sea, showing at the same time the extremes of colour. I am inclined to think that this change to the ermine dress is not altogether consequent on cold weather. I have as frequently met with the white ermine in mild as in severe weather, and the present season has been exceptionally mild. Not long since I saw a stoat in pursuit of a rabbit: how long the chase had lasted I cannot say, probably some time, as the rabbit was then nearly exhausted, slowly cantering a few feet in advance of its deadly foe. Whenever the rabbit stopped, which was every few yards, the stoat also stopped. Although I was at this time standing in full view, both pursuer and pursued passed within half-a-dozen yards; fear on the one side, expectation on the other, completely overruling their natural instincts. In watching this chase what most surprised me was that the stoat all this time made no attempt to seize the rabbit. Did he wish to completely exhaust his victim before closing with him? It reminded me very much of a well-trained dog driving a sheep. An incautious movement on my part now made the little brute fear for his own safety, and he in turn became the pursued, but having then neither gun nor stick I had but little chance

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of bringing him to account. He made rapidly off at the usual long bounding gallop, disappearing through a fence, the boundary of a thick gorse fox-cover. The rabbit I found squatted in the spot where the chase had terminated, and might easily have taken it, but thought it only fair after so desperate a struggle that the poor creature should save its life: it too retreated towards the fox-cover, but in a very different manner and pace from the stoat's, entering the gorse at the same run through which its enemy had preceded it. It proved an unfortunate line of retreat, for almost immediately after this there was a shrill squeal of distress; evidently the stoat had turned again, and was now completing his work: this proved the case, and on my entering the plantation I found the little brute dragging the now motionless rabbit across the ride into the gorse, exhibiting an extraordinary amount of strength, resolution and ferocity, not relinquishing his fatal death-grasp till his own life was in danger; and even after I had robbed him of his prey, and was walking off with it, he kept advancing from the gorse, running wildly about in the most excited manner, evidently very reluctant to abandon the hard-won prize. A few minutes after its death the rabbit became quite rigid, like a hare killed after a severe course.

Weasel.—A white weasel, probably an albino, has taken up his quarters in an oat-stack in my yard. It appears to be yet an open question whether the weasel, like the stoat, becomes white in winter. The late Mr. Wheelwright was decidedly of opinion that it does change colour, and states he has seen pure white specimens killed during the winter in Wermland. He goes on to say "I can prove by specimens kept in confinement that the change of colour from the red summer dress to the white of winter takes place by an actual change or shedding of the old coat, and not by the old hair changing colour."

White or Cream-coloured Moles.—There is a beautiful variety of mole occasionally trapped in Lord Yarborough's plantations near "Pelham Pillar," the highest point of the Lincolnshire North Wolds. An old mole-catcher informs me that he has taken them in this locality for many years, and considers them a distinct race. They are not white, but a beautiful rich cream-colour. This man has also taken moles in this same plantation cream-coloured, mottled with black.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
March 21, 1868.

Effects of Frost and Snow upon the Common Birds of the County Dublin during the Month of January, 1867. By HARRY BLAKE-KNOX, Esq.

BEFORE entering on the subject a slight description of the localities so much frequented by our birds during snow will be necessary. Latterly journal-writing has become so very fashionable, indeed regal, that I shall make no excuse for the following short extract from my journal as descriptive of these localities.

The soil along many parts of our coast, particularly where it is rocky, is either too poor or too shallow to repay the labour of the husbandman; besides the easterly gales of winter and spring drench it with salt water, burning up even the natural wild grasses and sea-shore plants that luxuriate in summer, in all the freedom of Nature and in defiance of man. * * * These fields or wilds teem with minute snails of various kinds; the ghost and allied-feeding moths have their strongholds in the soil, in the evening gladdening the eye, as the gaudy burnet moth and lovely cinnabar (*Euchelia Jacobææ*) did in the day. * * * Most abundant the tall yellow ragwort, the food of the cinnabar, now in all its beauty, oppressing the air with its heavy perfume, but soon to be covered with its crop of yellow and black caterpillars. Soon, like some skeleton form dry and withered, will come the winter breezes to sigh and chafe against its sapless stem, while in the ground and various crevices sleep the spoilers of its life. The old "bum" or dor beetle assiduously buries the droppings of the few poor sheep and bullocks that feed upon the scanty herbage around, adding nourishment but hidden death to their roots, for in each ball of dung so assiduously buried she has laid the germs of a dreadful grub. * * * Tipulæ in ceaseless clouds rise as you go along; they, too, are impregnating the soil with horrid pests. Worms and insects seem to reign here undisturbed, the plough and the spade never being known to have broken into their places of abode. But they have natural enemies quite as relentless, and far more effective than man—in the winter the scalding salt from the sea, the searching frost, and many hungry birds. When snow falls, the frost must be very hard indeed that permits it to lie on these fields, for obvious reasons—their proximity to the sea and the consequent humidity of the air, and their being so impregnated with salt. So when the country is snow and ice-bound, the birds have some chance here. The first night of frost and snow literally paves these fields with dead and frozen insects, worms, snails and grubs. I have counted about forty worms to a square yard, and it would take hours to clear a few yards of the snails, and this for miles.

January 1, 1867. The new year has set in with great severity. Wind E.N.E. Heavy fall of snow during night, occasional showers of same throughout the day. Freezing.

January 1—5. Till the evening of the 5th the snow and frost continued. Following are the effects produced by five days frost on our common birds.

Redwing.—Although arriving in great numbers in the end of October, 1866, about three weeks later than usual, was not to be seen in my district till to-day, the 1st of January. The redwing can be seen arriving from the east and north-east every year along the coast. In all the fields I passed through to-day along the coast they were in thousands, their harsh bark "e-wack" and their soft whistle "phee, e, e" have been ringing in my ears all day. Whole flocks could be seen arriving, crossing the Channel evidently from the English shore. Can it be that they have the instinct, when England is frost and snow-bound, to know that Ireland lies to the west, and that its climate is less severe on account of its humidity? After a few days, that is when the supply of food from these fields fail, they all disappear, with the exception perhaps of a straggler or so found under the bottom of some sunny hedge in company with blackbirds. Considering the whole country to be equally snow-bound, as it is this year, where do they migrate to again? Great indeed must be their sufferings when compelled to travel such long distances, on such precarious food, and the flocks must be decimated.

Fieldfare.—Appeared with the snow, I might say simultaneously. This bird is quite a mystery to me, its abundance in England, and its scarcity in seemingly most favoured spots in Ireland. In my district, rather, indeed, a barren one, but one in which "chance" has thrown me, and even too much for a close investigator of various branches of Nature, a six mile radius from the little historic and ancient town of Dalkey, I consider it little better than an occasional visitant appearing with snow to the day, and remaining only long enough to help to clear away the snails, &c., off the sea-coast fields. It is true an odd one may be met with in barren pastures in fine weather, but on the whole it is essentially a hard-weather visitant. During snow and frost it may be seen arriving from the east in countless numbers, so that the birds which we see along the sea-coast fields in hard weather are not driven from inland. It is rare to see it migrating, except in snow, although its harsh chattering note, and the white under surface of the wings, with the dark breast, make it a conspicuous bird at a long distance: the missel thrush, a permanent resident, is often mistaken for it. They seem to suffer intensely from the cold and from hunger: one shot and examined on the 3rd of the month had the crop packed with small stones and a few blades of grass only. On the 1st they were fat and in very good condition; on the 3rd very poor; on the 1st, 2nd and 3rd I saw numbers arriving from the east across the Channel: after the fourth day they had quite disappeared, and could not, I think, have weathered another four days of such hardship.

Thrush.—Thrushes have increased enormously at Dalkey since the snow. They are feeding in company with the fieldfare and redwing in open meadows (unusual situation), but still showing a decided partiality for the bottoms of walls and hedges and the edges of pathways, in search of snails and "lob-worms." Now in earnest, though always doing so, the poor thrush benefits the gardener by picking the large snails from their cosy holes, carrying them to a convenient spot, and, poor fellows, how feebly they often carry their burden, tired from their labours in unearthing, or perhaps from breaking the tough glue, that bound it in its lair, to a company of its fellows, to break them—another weary job, and one at which I have taken them up exhausted. What a brutal return for all this is the robbery of their nests in the spring, and the fatal gin in the fruit season. Shame on you, gardeners! I have been greatly struck with the large number of worms frozen and dead to be seen on every pathway and field, any of which that escape the first attack of the thrushes, and snow often falls so rapidly that many are buried under it, give great relief to the poor starving birds when the thaw comes: instead of having to seek it, when most in want Nature spreads a bountiful repast. So great is the bounty and goodness of God. I do not think thrushes arrive from the east in hard weather: I have never seen them migrating, but fancy that they come from inland. Fortunately a thaw came on the 5th, but they were quite exhausted and worn out, allowing themselves to be taken with the hand. Four days and a half had reduced them to this. What must be their destruction in protracted hard weather? The thrush never leaves us, like the redwing and fieldfare, but, on the contrary, increases in numbers with the severity of the weather,—rides out the storm or is shipwrecked. Sunny spots and aspects are their chief haunts in frost and snow,—pleasant in the day but bitter as all around at night, as many a poor frozen skeleton with feathers has proved.

Starling.—The starling seeks the same places as the redwing and fieldfare, in countless numbers, till all the food has been devoured; they then scatter about in small flocks, seeking sunny spots, where they bask and feed (alas!). Their merry chatterings and easy graceful flight make them a very welcome relief to the monotony of snow, if one could but forget their famishing state. Incessantly during snow millions arrive from the east across the Channel. Next to the lark they are our most abundant snow bird, weathering the storm or dying with us. Ireland seems their last resort. They are always a regular autumn and winter visitant to this country, but in hard winters arrive in thousands for the one in fine.

Sky Lark.—During snow these birds arrive in countless thousands, from the north and north-east, across the Channel. Day after day, week after week, the incessant tide of birds flows into Ireland in flocks of tens, hundreds and thousands. Where they come from, where they go to, I cannot tell. I could scarcely believe, I was going to say, a continent, a country, to contain such multitudes as I have seen flying from the east into Ireland, the first three weeks of 1867. These remarks apply to about a quarter of a mile of coast, but the same tide of birds was pouring in from north to south of our eastern shores. Their numbers must be astounding. They do not appear fatigued, but fly westward, making no stop. Although in thousands in this county, but a moiety of them alight in it. Where do they go to? what instinct informed them of Irish land? as it is evident they are not our natural migrants, coming as they do so late and in such numbers. It is at these times that we hear of quantities found dead on our eastern coast.

Meadow Pipit.—Always a most abundant bird in the County Dublin, but becomes much more so for a time in snowy weather. It then seeks the sea-coast and beach, also warm dung-hills, water meadows, and, in fact, any place where the frost has little effect. After little more than four days frost and snow, I found many dead birds and others much exhausted. In inland districts I consider it the most likely to suffer of any of our small birds, its feeding-grounds being so open and exposed that the first snow covers them.

Rock Pipit.—Being a hardy bird and feeding amongst the sea-weed covered rocks of the coast, and the rotten *débris* of the strand, does not suffer so much from hunger as from the cold at night, to which it often succumbs.

Lapwing.—Seems to have been driven entirely from inland to the coast. The beach of Killiney, which is generally very barren in its Ornithology, was strewed with large flights of these birds. They seemed to have forgotten all their lapwing habits, and fed, like the common sand-birds, at the margin of the water. They were very tame, but in such bad condition that I did not shoot them.

Curlew.—On the commencement of hard frost and snow the curlew seeks the sea-coast fields, and often travels great distances inland, frequenting wild and barren districts, feeding on small snails and worms. It is equally partial at all times to barren sand-hills, feeding in their valleys and on the edges of the little lakes scattered generally amongst them: even in these situations, so admirably adapted for the stalker, it is next to impossible to get a shot at them, as they place a sentry on a commanding sand-hill near. Many consider it quite a marine bird, like the whimbrel, which I think rarely leaves the sea-coast.

Heron.—Herons seem very disquieted since the frost: I am sure I cannot tell what they live upon; they, like the other sand-birds, have left the oozy parts of the coast, showing that their food there has left the shallows to avoid the frost. They cannot get much in the rivers, as the trout and eels conceal themselves in the deepest pools, and seldom wander about in frost. Perhaps the following paragraph, from the 'Tyrawley Herald,' may explain it a little: friends have corroborated it:—

"*The Moors in the West of Ireland.*—Such was the severity of the frost and snow that several hares were found dead on the moors, and grouse became so tame that they were seen in numbers picking on the manure heaps at the cabin doors on the mountains. They afterwards passed in flocks towards the south, and fears are entertained that they have not all returned. Woodcocks, ducks and wild geese went in hundreds to the sea side, where many of them have been shot. The hooded crows were seen to fight each other to death, and the victors to regale themselves on the dead bodies of their foes; and, more strange still, herons were found devouring the snipe which were unable to fly. It was well at this time for the feathered tribes that the Habeas Corpus Suspension and Peace Preservation Acts were in force, as otherwise the destruction of game would have been immense." —*Tyrawley Herald.*

Snipe.—January 3. Till to-day I never had the pleasure of seeing a snipe crossing the sea. One passed over my head, flying from east to west, of course migrating: its flight did not differ from the erratic course generally pursued, though conducted more in the one direction: it was about two hundred yards high. The frost-bound state of the country has filled the drains and springs with these birds, some in very good, others in very indifferent, condition: I killed to-day, with a muzzle-loading gun, thirty-five brace, five and a half couple of cocks, three mallards and five teal, in suitable localities for frosty weather. Were it not that I wanted the cocks and ducks I have no doubt I could have procured half as many more, and with a breech-loading gun in all probability double the number: I missed one snipe. Being passionally fond of snipe-shooting, and knowing that two or three others were following me and would have got what I left, is the only excuse I can offer for the unnaturalist-like destruction. Where all these snipe came from I cannot say, this county only being a tolerable one for them. I was informed they were in great numbers in such localities throughout Ireland. In parts of May a good shot can bag from thirty to sixty brace a day, at times even in open weather.

Woodcock.—Large flights have visited this county; they are very abundant and to be found in unheard-of places. In the direction of Swords the country people killed them with sticks as they alighted exhausted. Any I shot were fine active birds; fat and muscular. There is an idea prevalent in Ireland that the woodcock can pick up condition in twenty-four hours. Be this as it may, I know a day or two makes a vast difference in their condition.

Sparrow.—The best off of the feathered race in snowy weather, feeding in yards and on the charitable crumbs outside houses. During this weather they show a decided partiality for warm chimneys to roost in. The smoke seemingly only has the effect of blackening their plumage. The dirty little scoundrels come out, thus begrimed, in fine relief against the white snow.

Blackbird.—January 4. Seem strong on the wing, cheery of note, and not tamer than usual. They never feed in the fields with the thrush or redwing, but seem to prefer the sunny bottoms of hedges and ditches. There are a great number of haws not yet consumed, so they will not suffer yet awhile. Some watched feeding on these berries seemed very dainty in those they took. Haws are always most abundant before a hard winter, and seem to stick designedly to the trees.

Linnet, Greenfinch and Yellow Bunting.—These birds flock to weedy ground and farmsteads. They consume the leaves of herbage now as well as the seeds, and seem very restless, and to suffer much. They are easily trapped in the farm-yards, shot in scores, and caught at night in the ricks; but were it not for the shelter of the haggard and the grain they can pilfer, notwithstanding all that are killed in such places, we would have a bad account of them. They can hold out a considerable time, but still die in numbers of the cold.

Lesser Redpole.—Great numbers of these birds visit us, scattering themselves over weedy districts, farmsteads and the marshy lands of the sea-shore. Countless flocks seek the brackish land about the "Bull," Dollymount, to feed on the wart-worth and other barren-land plants, whose seeds are here at all events only eaten by themselves and the snow bunting, thousands of which assemble with the redpole in such localities.

Chaffinch.—Well scattered about; I think I see as many males as females. I notice none of those large flocks of females one sees in ordinary winters. They seem to suffer greatly. Beneath my window some males are so weak as to be unable to crack hemp-seed, half a stone of which I have scattered about—I fear greatly, though, only to fatten the old sparrows, who make short work of eating it.

Blackheaded Gull.—Since the snow the county has been inundated by the blackheaded gull: they seem starving. Three shot from a flock of some hundreds whilst feeding were found to contain the maggots, chrysalids and imagos of the common sea-shore fly, together with pieces of the decayed sea-weed, amongst which they were found. In easterly gales the rotten sea-weed driven up on the beach by some former storm is again carried out to sea, together with the numerous broods of flies propagated in it. Thousands of gulls take advantage of this Godsend, alighting on the water and feeding in a similar manner to the phalarope. At such times when a large breaking wave advances, it is a striking sight to see thousands rise as one upon the wing, only to alight again when the breaker has rolled past.

After a few days of thaw the frost set in again, with more snow, out of the north and east, and lasted about two weeks. By the middle of the second week sky larks were quite exhausted, dying, and to be caught with the hand: if it was not for the cold at night they might hold out well, as, like the partridge, they feed greatly on the leaves of grasses and herbs. At no time have I found the partridge better or fatter than when feeding on grasses during severe frost and snow. I have found partridges frozen dead in very fine condition: this was in a country where they had not the shelter of thick furze-bushes to covey and nestle under. Thrushes even more exhausted, and found dead. Redwings—what remain of them—more exhausted, than the thrushes; any picked up dead were mere bunches of feathers. Meadow pipits have suffered severely: I believe the body of them have succumbed to the frost. Starlings suffering intensely, dying in numbers, and to be caught with the hand. On the sunny banks of railways hundreds of dead birds are to be found, particularly starlings, redwings and thrushes.

Rook.—The rooks do not seem to be very badly off, but have quite lost their rookish habits; they have deserted the snow-clad fields, feed in stable-yards with sparrows on the oats found amongst horse-dung, frequent public roads for the same purpose, "scavenge" the back yards of houses, becoming petty vultures in their way, frequent the sea-shore in whole rookeries, and last, but by far the most important, hawk incessantly after the poor dying birds, which they kill in numbers. Though this is a regular habit of the rook, I never saw so many birds struck and killed by rooks as I did this year. A fellow shot in the act of killing an old comrade, a starling, was in prime condition: on putting him into a loft he ejected, during the night, several bone-pellets, like those from the crop of a bird of prey.

Missel Thrush.—No increase of numbers. They seem very tame and to suffer much, feeding principally on what haws and berries they can find. They are usually unapproachable here, except in the breeding season. As long as berries hold out they should do well in the food line, as they are their chief support.

Waterhen.—Have come down the streams very emaciated. Their large foot-marks are to be met with everywhere, and the birds stalking about in all kind of places.

Redbreast.—Notwithstanding all that is said about the redbreast being a very delicate and tender bird to cold, I find that the severe frost of the past three weeks does not appear to have affected it in any decidedly detrimental manner. I find him at the window and in the garden, eating the crumbs of charity. I find him in the farm- and straw-yards, by the warm dung-hills; I find him by the wild sea-coast, and I find him in the lone country hedge, the snipe feeding in the drain beneath. They perhaps do not look so sprightly as usual, are a little more "puffy" in plumage, and their look one *might* interpret as imploring help, but then should you kill and examine one you will not find it much the worse in muscle. Why should they be? Being a hole-seeking bird, have they not many a place we know not of, where frost and snow do not reach, and where their food lies in abundance, and where they can shelter well at night? It is idle to say that they suffer most of the feathered tribe; but pity them if you will, kind heart, as I do, the hardships they endure, when you think of their engaging ways, their fearlessness of man, their mellow eye, their fairy shape, the exquisite soul-subduing melody of their song, calling up old recollections by its melancholy plaintiveness, singing as it does in the old yew-tree, for—

> "The bird of all birds that I love the best
> Is the robin which in the church-yard builds its nest;
> For he sings o'er my Kathleen,
> Hops lightly o'er Kathleen,
> My Kathleen O'Moore!"

And last, not least, the redbreast—first cousin of pity from childhood's days. But sorrow, kind heart, each night of protracted frost and snow, for the poor lark, the thrush and the starling, whose food lies on the open fields, now covered deep with frost and snow.

Wren and Hedgesparrow.—Seem not to suffer more than the robin, their habits being somewhat similar. The hedgesparrow comes nearer to man's habitation and frequents faggots in abundance, feeds in sewers and among the pigs' food, eating indeed anything that is soft and edible. They are most endearing little creatures at this time. I have not found wrens here sleeping in packs in the holes of corn- and hay-ricks, as writers assert, and cannot fancy that a number of these birds in a hole could die of cold—more probably of suffocation and want of ventilation—a death in such cases is one of great ease, a gradual faint from which they never awaken.

Ringed Plover.—To be met with along all our rocky coast, feeding amongst the sea-weed (very unusual). They greatly frequent the mouths of rivers at such seasons, and all kinds of unheard-of little shingly spots along the sea-coast. It is rarely seen on our rocky coast. Sometimes, at high water, and when driven from the strand by the tide, a flock or two may be met with on the West Pier, Kingstown. They are essentially a strand bird, though, unlike many of the true sand larks, are very fond of barren shingly beaches.

Blackheaded and Common Gulls.—Swarming everywhere in unheard-of numbers, inland and coastwise. The first-named bird has grown very tame and feeds in strange places; for instance, I saw three feeding on fish-guts by the side of a public road, and heard of others feeding in back-yards in the city. They feed on what worms and other food they find inland, as the strands seem quite deserted by them, showing that their prey there must be influenced by the frost. In fact, the strands are quite deserted by all their usual denizens. Some of both species shot were in a fearfully emaciated state—a striking comparison to a robin killed the same day.

Cormorant and Shag.—Are very wild and constantly on the wing. Must suffer much on account of the torpidity of the fish, particularly the cormorant, whose chief prey, the flat-fish, lie torpid in the sand.

Northern Diver.—Has the bill very much worn by rooting up the sand-dabs. It is well known that flat-fish bury themselves under the sand in severe frosts. Crabs, lobsters and whelks become torpid, and will not go into the pots set to take them, but creep to deep water, where the frost does not reach.

HARRY BLAKE-KNOX.

Dalkey, County Dublin,
February 14, 1868.

In Memoriam Wilson Armistead, of Virginia House, Leeds.[*]

By ALBERT MULLER, Esq.

WHEN, some years ago, I began to converse by pen with the esteemed friend whose decease so many are now deploring with me, I did so from a conviction that, in his own words, "A somewhat neglected portion of Nature's wonderful and infinitely varied productions," *viz.* galls, wanted elucidation. Besides it occurred to me then that ever since the death of my countryman, J. J. Bremi-Wolf, of Zueric, the study of Swiss galls and of their insects had been lying dormant; whilst in the hands of Dufour, Giraud, Laboulbene, Fairmaire, Perris and Vallot, in France; of Von Frauenfeld, Hartig, Kaltenbach and Kollar, in Germany; of Von der Osten Sacken and B. I. Walsh, in the United States; and of Westwood, Smith and others in England, the study of these curious productions, of their rightful inhabitants and numerous inquilines and parasites, had elsewhere made many and rapid strides forward, not to forget the very recent investigations on the reproduction in the unisexual (?) Cynipidæ, and on the viviparous larvæ of Cecidomyia. Seeing, then, that scarcely any one paid attention to the galls of my native land, I resolved to do the little in my power to cultivate their knowledge again. I have ever since been accumulating materials, and shall continue to do so.

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[*] Born 1818; died February 18, 1868. A short sketch of his life and social labours appeared in the 'Entomologist' for March, and in the 'Leeds Mercury' of the 20th of February, 1868.

Mr. Armistead's lamented demise having, as it were, severed the intellectual thread connecting the observations of different individuals in various parts of this country and abroad, the present seems to me to be the proper moment for bringing forward a few notes and queries on British and foreign galls and other excrescences, which have accumulated in the course of my reading and rambles for the last few years. It will be seen in the sequel that Mr. Armistead's numerous communications have afforded to me some most important information: this stands quoted throughout, identified by his initials and the dates of his letters. The kind contributions of other gentlemen I have also everywhere acknowledged, and thank them here publicly for their various good offices.

In a compilation of fragments like the following the absence of any order, either entomological or botanical, may be excused, my purpose being simply to interest out-door observers and to invite their cooperation in the investigation of what we may in this instance truly call "knotty points."

Convinced as I am that our understanding of the present productions of our globe will be largely benefited by knowing what the past has produced, I begin, by way of a kind of desultory introduction, with the little as yet ascertained concerning—

Fossil Galls.—The late Senator Carl von Heyden, in Frankfort-on-the-Maine, was, I believe, the first to describe and figure fossil galls on Salix abbreviata, *Göppert*, and as their position on the leaf, their size and shape were unlike those of a Cynips or a Cecidomyia, and as recent Acaridæ are known to produce similar excrescences on limes and willows, he came to the conclusion that these galls were caused by an Acarus, which he named Phytoptus antiquus.* The same author subsequently described and gave a figure of the galls of Cecidomyia (?) dubia.† Both these galls are from the "Braunkohle" of the Nether Rhine (Salzhausen). The next explorer in the field was Professor Oswald Heer, of Zueric, who received from Oeningen about a dozen fossil poplar-leaves (*Populus latior*), the stalks of which were distorted by Aphis galls, similar to those produced now-a-days by Pemphigus on several poplars. The name given to this fossil plant-louse is Pemphigus bursifex.* Professor Heer has also found small semi-globular galls on a fossil poplar (not willow) leaf from Oeningen. These are ascribed to a dipteron, named Cecidomyia Bremii, † as he finds that the galls agree with those of the recent Cecidomyia Salicis. ‡

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* 'Achter Bericht der Oberhess, G. f. Nat. & Heilkunde,' 1860, p. 63, and Von Meyer's 'Palæontographica,' t. 10, p. 64, tab. 1.

† Von Meyer's 'Palæontographica,' t. 10, p. 80, tab. 1.

Leaving the faithful but (in this instance) scanty records of the book of Nature, we come to annals of a more spurious kind, the quaint and fanciful notions which originated in the human mind. Handed down from generation to generation, these are now considered, not as always affording trustworthy knowledge, but as curious heir-looms of the brain-work of bygone times, when the light of Science was mostly confined to the lanthorns of the cloister and the solitary flickering lamp of the alchymist. No doubt the readers of the 'Zoologist' are acquainted with the opinion entertained in the fourteenth and following centuries on the leaf-roses of the willow,§ so I may be allowed to pass over this subject here, likewise the often-ventilated question of the identity of the so-called "Dead-Sea apples" with galls, which latter point has at various times been commented upon by writers eager to substantiate the testimony of ancient writ. || But the following early signs of gall-study in this country may not be generally known to the entomological reader. On the 6th of February, 1658, Sir Thomas Browne, of Norwich, wrote, in a letter to Mr. Dugdale, the following:—"I made enumeration of the excretions of the oak, which might be

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* Heer, 'Insectenfauna, &c., von Oeningen, &c.,' t. iii. 1853, and 'Urwelt der Schweiz, 1865, p. 389 (Rhynchota).

† Heer, 'Urwelt,' pp. 394, 395, fig.

‡ I am indebted to the late Senator von Heyden for a copy of his first notice on fossil galls; to Prof. Heer for kindly pointing out to me what fossil galls came under his notice; and to Dr. H. Hagen, formerly of Koenigsberg, now of Cambridge, Mass., for a complete index to the fossil genera of gall-makers as far as known; and I much regret that, on account of Mr. Armistead's death, these valuable materials will have to be laid by for the present.

§ See, for instance, Ed. Peacock's interesting letter in the 'Athenæum' of March 18, 1865; reprinted in the 'Zoologist' (Zool. 9554).

|| Book of Wisdom, chap. x. 7. Lambert, A. B., "Some Account of the Galls found on a Species of Oak from the Shores of the Dead Sea" (Trans. Linn. Soc. 1837, t. 17, pp. 445—448, pl. 1). Elliot, W., "Account of the Poma Sodomitica," &c. (Trans. Ent. Soc. Lond. 1837, t. ii. pp. 14—18).

observed in England, because I conceived they would be most observable if you set them down together, not minding whether there were any addition by *excrementum fungosum vermiculis soatens*, I only meant an usual excretion, soft and fungous at first and pale and sometimes covered in part with a fresh red, growing close unto the sprouts; it is full of maggots in little wooden cells, which afterwards turn into little reddish brown or bay flies. Of the *Tubera indica vermiculis scatentia* I send you a piece; they are as big as good tennis-balls and ligneous." * The first of the productions referred to in this letter is perhaps the common oak-apple (*Cynips terminalis*, Fab.); the modern name for the "Tubera indica" I should be glad to learn.

"Bitter as gall" has long been a standing saying; † to listen to truth is sometimes more bitter still, but this is no valid reason for keeping it in the back-ground, when the opportunity occurs of speaking it, and so I hope that the following quaint logic will be borne in mind by those literary craftsmen who stand in want of such a warning:—In a story of the tenth century by Scheffel (vol. iii. p. 4), intituled 'Ekkehard,' this person asks, "How does it happen that so much that has flown from ink cannot deny its origin?" Answer: "Because all ink comes from the gall-apple, and all gall-apples from evil wasps' sting."

A biographical notice of William Hall, *alias* "Antiquarian Hall," &c. (who was born June 1, o. s. 1748, at Willow Booth, a small island in the fens of Lincolnshire, near Heckington Ease, in the parish of South Kyme, and who died at Lynn, in Norfolk, January 24, 1825), contains the following interesting observation—I say interesting, because full allowance must be made for the state of knowledge extant at the time it was written:—"'No animation without generation' seems a standing axiom in philosophy, but upon tasting the berry of a plant greatly resembling brooklime, but with a narrower leaf, I found it attended with a loose fulsomeness, very different from anything I had ever tasted; and on splitting one of them with my nail, out sprang a fluttering maggot, which put me upon minute examination: the result of which was that every berry, according to its degree of maturity, contained a proportionate maggot up to the full-ripe shell, where a door was plainly discerned, and the insect had taken its flight. I have ever since carefully inspected the herb, and the result is always the same, *viz.* if you split ten thousand of the berries, you discover nothing but an animated germ. It grows in shallow water, and is frequently accompanied by the water plantain: its berry is about the size of a red currant, and comes on progressively, after the manner of juniper in the berry: the germ is first discoverable about the middle of June, and continues till the frost subdues it: and my conjectures lead me to say that one luxurious plant shall be the mother of many scores of flies. I call it the fly-berry plant." *

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* 'Posthumous Works of the learned Sir Thomas Browne, Kt., M.D., late of Norwich, &c.' London, 1712. 8vo.

† I am, of course, aware that no vegetable "gall" is implied here.

"The extract from William Hone's 'Table Book' I am much obliged for, as I wish to trace the history of the knowledge of galls by naturalists, who for long appear to have had very erroneous opinions respecting them: this is strongly shown by this extract from Hone's book, which is on a par with the odd ideas formerly entertained of the barnacle goose. The plant known as 'brooklime' is Veronica beccabunga, found in slow shallow streams in June and July. There is a plant 'brook-weed' (*Samolus Valerandi*), growing in marshes and moist meadows, but I never saw or heard of galls on either, and it is almost too late to search for them, I was going to say, but I think not, as they will be to be found long after the flowering time."—W. A. *in litt.* October 2, 1865.

This gall on "brooklime" is still unknown to me. Can anyone find it?

I must now bring this disconnected chapter to a close, and begin to point out a few cases of galls as yet imperfectly known. I add a few words of reference, relating to galls fully described by authors, but for which I can give new localities. If it should seem almost useless to anyone that I have endeavoured to be particular in giving exact localities even for common galls, I would remind him that it is by no means proved in all instances that the geographical distribution of the food-plants accords everywhere with the horizontal or vertical spread of the insects, and that, however slender our present knowledge of the habitats may be, a time may reasonably be anticipated when gaps will be filled up and when even fragmentary lists of localities will meet with approval at the hands of a generalizing mind.

The galls my memoranda refer to are on—

Aspen (Populus tremula).—Pea-sized gall, produced by Cecidomyia polymorpha, *Bremi* (Beitraege zu einer Monographie der Gallmücken, 1847, p. 15, and tab. 1, fig. 14). Locality: Radolfszell, on the Lake of Constance, August, 1867.

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* William Hone's 'Table Book,' 1831, p. 145.

Small woody cones, standing mostly along the midrib of the leaf, one line high, on upper surface; whilst the under side of the leaf shows only raised tubercles in the same spots, which latter are pierced, when the larva leaves the gall. Cecidomyia bifrons, *Bremi?* Locality: Radolfszell, August, 1867.

Specimens of both the preceding galls were sent to me by Mr. C. Schaffner.

Beech (Fagus sylvatica).—The woody conical gall with a pointed apex, produced by the Cecidomyia Fagi of Hartig, has reached me from so many localities in Switzerland and Germany that I am inclined to think with Bremi, that it is well nigh as widely distributed as the tree itself. Besides it is so well known that any comments would be superfluous, so I only just mention that the specimens exhibited by Mr. Saunders before the Entomological Society of London on the 7th of November, 1864, belong to it, and that Mr. Armistead has met with the thin vermiform summer gall pertaining to this species near Harrogate, in September, 1866.

Tubular galls, height from one to two lines, covered with a reddish pubescence on the upper side of the leaf, standing almost all along the midrib. These I found near West Wickham on the 1st of October, 1865, commonly, mostly on sheltered branches of the beech. Insect unknown to me.

On the trunks of beech I find woody, hard, knob-like rounded excrescences of about the size of a marble. On being detached their under side shows concentric rings of growth. Shirley, May, 1866. Rennie ('Insect Architecture,' p. 339) supposes them to be produced by one of the Curculionidæ, but I have never been able to detect any trace of insects in or near them. Is this production allied to the "black-knot" of American authors?

Box (Buxus sempervirens).—Small, flat, round dark brown excrescences, of half a line in diameter, both on the upper and under side of box-leaves. "Were sent to me by a friend in Hampshire."—W. A. *in litt.* April 7, 1866. I am inclined to refer these excrescences to an Acarus, possibly a Cephaloneum.

Common Bracken (Pteris aquilina).—Leaflets discoloured, either reddish or black, rolled up or otherwise distorted. "Are very common here, Allonby, Cumberland."—W. A. *in litt.* August 9, 1867.

Celtis australis.—Flat, rounded, mine-like blisters, one to two lines in diameter, slightly raised on both sides of the leaf, as many as from fifty to sixty blisters on the same leaf, which is attacked in all stages of growth. When dried these blisters look like flattened oak-spangles, or like the fungus so commonly met with on bramble-leaves: this resemblance is evidently a powerful means of protection against predatory insects or birds. All these galls present an orifice on the under side of the leaf. One I found tenanted by a living Thrips, and this is the only insect I have seen in these galls as yet. Prof. Westwood ('Introduction to Modern Classification,' vol. ii. p. 4) mentions of Thrips that "The leaves upon which they reside [are] marked all over with small decayed patches." This is exactly what these blisters on Celtis look like, but they are undoubtedly mines. Mr. Stainton has favoured me with the following opinion on the same production:—"The mines, or rather minute galls, are probably the work of a minute hymenopteron." To me their originator is still a puzzle; the leaves containing them were gathered by my friend Mr. Charles Schaffner, in August, 1867, near Radolfszell, on the Lake of Constance. The plant grows throughout the South of Europe.

Cranberry (Vaccinium oxycoccos).—"A correspondent mentions finding a gall-like formation on the cranberry, but I have not yet been able to get a specimen."—W. A. *in litt.* April 9, 1867. This would be a novelty: can any observer send it to me? Possibly the dwarf-willow gall, mentioned further on, has been mistaken for this production.

Elder (Sambucus nigra).—Woody excrescences on the root, sometimes of the shape of a cauliflower, brown, individual sprouts more or less regularly digitate or palmate. Size varying from that of a grain of wheat to that of a walnut. "In some places they are pretty abundant, though, from being just under ground, except where the upper soil gets washed off by rains or the side when near streams, they are seldom observed. They do not appear to have any insect-life connected with them, and may after all prove to be something cryptogamous, but they want observing at different seasons."—W. A. *in litt.* Through Mr. Armistead's kindness I have been enabled to examine recent specimens in all stages of growth, and I concur in his opinion that this production has no connexion with any insect whatever. I introduce the subject here in hopes that some observer may succeed in tracing the true origin of this excrescence.

Elm (Ulmus).—The large purse-like gall produced by Schizoneura(?) Gallarum (Ulmi of De Geer), mostly on stunted elms, and formed of the leaf itself, as is in some specimens plainly shown by the midrib of the leaf still retaining its original position round the gall, has reached me from Basle, where Mr. Stehelin-Im Hof collected it in June, 1867, on an elm with smooth twigs. Mr. Armistead found it near Nancy and Mannheim in the same month, and it occurred to me near Penge, in July of the same year, rather abundantly on an elm-bush, the bark of which is dilated in lamina, disposed lengthwise along the twigs. Can any botanist give me the scientific name of this variety of elm.* A discussion on this gall took place before the Entomological Society of London on the 5th of November, 1866, and to Mr. M'Lachlan we are indebted for a handy *resumé* of the observations of previous authors who wrote on these and allied galls ('Entomologist's Monthly Magazine,' vol. iii. pp. 157—159), to which Mr. H. C. Cooke has added some interesting facts at p. 190 of the same periodical. My friend Mr. H. Knecht, of Basle, sent to me, in September, 1866, specimens of broad elm-leaves collected near Basle, on the upper side of which there stand numerous pedunculated, fig-like, hollow excrescences, of the size of a small bean, green, tinted with purple-red. These galls were filled with winged individuals of an Aphis, which I refer with doubt to Tetraneura Ulmi of Kaltenbach. A translation of Kaltenbach's extracts from Von Gleichen's work, referring to the preceding or an allied species, has been given by Mr. M'Lachlan in the paper quoted above. I am inclined to say that though Kaltenbach, as quoted by Mr. M'Lachlan, could find no differences between the tenants of his large and small galls, that the two species of Aphidæ to which I refer the two kinds of galls mentioned by me above are as distinct from each other as two insects belonging to the same family can possibly be: the entomological proof for this assertion remains to be given, but in the mean time I would simply ask the question, has any one ever bred the same insect from galls of a different shape and of a different location—say, for instance, from a large purse-shaped gall formed by the transformed leaf and fig-like small pedunculated galls, standing in numbers and independent of each other on one and the same leaf? I think not,† and it is not going too far to assert that the size and shape, texture and covering of most galls, their location on the bud, leaf, twig, trunk or root, are regulated within certain limits by laws as inviolable as those governing other organisms; that we meet here and there with exceptions need not disturb our belief in the existence of this law, for there is no rule without an exception.

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* Is it Ulmus suberosus?

† I am quite aware of the Rev. T. A. Marshall's valuable observation on the two galls of Spathegaster baccarum, *Linn.* (Ent. Monthly Mag. vol. iv. p. 225), but the form and structure of these is identical, and only their location differs.

Spurge (Euphorbia cyparissias).—The leaflets of terminal shoots, stopped by larvæ of Cecidomyia capitigena of Bremi, in their ordained development, produce a bud-like head, beautifully tinged with red (Bremi, *loc. cit.*, tab. 2, fig. 24, p. 25). "Forbach, June, 1867."—W. A. *in litt.* July 3, 1867. Cecidomyia subpatula, *Bremi*, produces a different head of leaflets on the same Euphorbia (Bremi, *loc. cit.*, p. 23, and tab. 2, fig. 25).

Dyer's Weed (Genista spinosa).—A pod-like gall, about two lines in length, gathered by Mr. Stainton near Cannes, in March, 1867: insect unknown to me. Rennie ('Insect Architecture,' p. 331) describes and figures a similar gall on Genista tinctoria, which he refers, with a query, to Cynips Genistæ. This latter gall I have never met with.

Wild Geranium (Geranium sanguineum).—A green leaf-rose, the individual leaflets tinged with red, produced by a Cecidomyia? "Allonby, Cumberland."—W. A. *in litt.* August 9, 1867.

Grass.—On a short-jointed, narrow-leafed, low, creeping grass, along a road near Woodside, Croydon, I met (in September, 1865) with pink, smooth, polished galls, of the size and shape of a caraway-seed. Dipterous?

Hawthorn (Cratægus Oxyacantha).—The bedeguar of the hawthorn was very abundant near Penge in June, 1867. "Was very frequent near Leeds in 1866."—W. A. *in litt.* August 9, 1867. Described and figured by Rennie ('Insect Architecture,' pp. 346, 347), who thinks that this excrescence may originate in the natural growth of a shoot being checked by the punctures of Aphides, &c. I should like to see this statement superseded by actual observation. Specimens in my collection show regular rows of bundles of very short brown bristles, set so thickly in some spots as to resemble the fur of some caterpillar.

Juniper (Juniperus communis).—A woody hard gall of a little less than walnut size, on the basis of a stem, was sent by Mr. Newman to Mr. Armistead: locality unknown to me. At the Meeting of the Entomological Society of London on the 16th of March last, Mr. Stainton called attention to the fact that Herr Hartmann, of Munich, had bred a Trochilium, a Grapholitha and a Gelechia, from twigs of juniper, upon which he had observed some gall-like swellings:* an examination of juniper-bushes during the spring would probably lead to the discovery in this country of the two last-mentioned insects" (Zool. S. S. 1184). I never yet met with these swellings, and should feel obliged for a specimen to any observer who would kindly send me one.

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* Full particulars of Mr. Hartmann's observations are published in the 'Stettiner Ent. Zeitung,' 1868, part 1.

Yellow Toad-flax (Linaria vulgaris).—Pea-sized, pale yellow or white gall, produced by Gymnetron Linariæ of Panzer. "Are not uncommon here, Allonby, Cumberland, but one has to pull up a great many roots to find them. I am trying to get at the insect by planting the roots in small pots."—W. A. *in litt.* August 16, 1867.

Oak (Quercus Robur).*—I possess a long series of galls, mostly hymenopterous, collected both in England and abroad, on various species of oak, but space forbids me to enter into the subject here. I could not yet obtain possession of specimens of the so-called "woolly gall," the root-gall of Cynips aptera, and the currant-gall of the catkin, and I mention these gaps in my collection to bring them to the knowledge of entomologists who may feel disposed to help me in filling them up.

Black Poplar (Populus nigra).—Leaf-stalks distorted by one or more fruity-looking swellings, occasioned by the Aphis, Pemphigus cursarius of Linneus, found near Basle, in September, 1862. I have mentioned a fossil species of this genus in my introductory remarks. The observation of these contortions on the leaf-stalk of the black poplar has led me long ago to the idea that there must be some analogy between the growth of pulpy fruits and that of fleshy galls, and indeed if we cut any of the softer galls transversely we meet with a similar grain as in many fruits: the knife discolours and spoils not only the apple, but also the oak-apple; and, as to exterior changes, I have watched these poplar leaf-stalks, first in a green, hard state, gradually assuming the red cheeks of ripe fruit, then the rich yellow of a very ripe pear, and afterwards the sober tints of decay, brown and black. I have also noticed that the tree sheds these distorted leaves much earlier than sound ones. The Rev. H. J. Berkeley has years ago commented on various striking resemblances between cryptogamic plants and galls.† Resemblances between fruits and galls are so commonly met with that in describing the latter we are constantly compelled to use designations usually applied to the former.

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* The Rev. T. A. Marshall is at present publishing, in the pages of the 'Entomologist's Monthly Magazine,' a series of exhaustive articles on the Cynipidæ of Great Britain, which will be quite indispensable to future inquirers in this field.

† In his paper, "On a Gall gathered in Cuba," &c. (Trans. Linn. Soc. 1841, t. 18, p. 575.

Alpine Rose (Rhododendron ferrugineum).—Fleshy, fruit-like galls on the leaf, of about the size of a raspberry, smooth; one gall grown right on the edge of a leaf. For an inspection of these to me novel galls on the far-famed "alpine rose" I am indebted to Mr. Stainton, who kindly allowed me to send them to Leeds, and who, at my request, has furnished the following precise particulars, which will enable any tourist to investigate the subject further, if they are not already described somewhere. Mr. Stainton writes, "They were common enough at Andermatt, from one hundred to two hundred feet above the chapel, which is itself just above Andermatt: the colour was green, with a slight rosy tinge in places: the date was July 30 (1866)." Insect unknown to me.

Rose (Rosa canina).—Of the common bedeguar of the wild rose I possess a specimen, showing on the same stem, on a length of not more than three inches, six bedeguars placed round the stem, each about the size of a walnut: it was found near Box Hill, where this bedeguar was exceedingly numerous in 1865. A leaf of this rose in my collection displays several small tufts of red bedeguar bristles: a similar case is mentioned by Réaumur, as reported by Rennie ('Insect Architecture,' p. 329). Rhodites Rosæ of Linneus. "I find the farmers here (Harrogate) gather the mossy galls of the rose to make an infusion for diarrhœa in cows, which they say is very efficacious."—W. A. *in litt.* September 24, 1866.

Burnet Rose (Rosa spinosissima).—Polythalamous, woody galls, of the size and shape of a small rounded bean, mostly beautifully tinged with red, sometimes provided with short obtuse spines; a few specimens cushion-shaped with leafy fringe all round. (Rhodites ——— ?) "Allonby, Cumberland, very abundant in August, 1865 and 1867."—W. A. *in litt.* August 18, 1865, and August 9, 1867. One of the specimens obtained in 1865, which I have kept ever since in a dry box, opened to-day (March 9, 1868), shows one larva alive, though much shrivelled and lean.

Meadow Sweet (Spiræa Ulmaria).—The well-known gall produced by Cecidomyia Ulmaria, first described and figured by Bremi (*loc. cit.* gall, p. 16, and insect described, p. 52; gall figured, tab. 1, fig. 15), needs only a passing notice here, as Mr. H. W. Kidd has given an excellent account of it in the March number of the 'Entomologist's

Monthly Magazine' (p. 233), which saves me the trouble of recapitulating its history: I can, however, add my mite to Mr. Kidd's dates of breeding, as in 1867 I bred this gnat as early as the 7th of July, from specimens obtained near Penge. I introduce S. Ulmaria principally to call attention to Spiræa filipendula, "which has also a gall on its leaf, but I have not been able to preserve it, either by drying or in brine. It is rather red and pretty when recent."—W. A. *in litt.* July 10, 1867. If this gall has not yet been noticed abroad, and if the Cecidomyia, which undoubtedly occasions it, should turn out to be a novelty, I hope whoever describes it will name it "Cecidomyia Armisteadii," in remembrance of one whose heart was in the study of galls for years, and whose exertions in the cause of suffering humanity will not be soon forgotten.

Sumach (Rhus integerrima, *Wall.*).—"Kakra-Singhee. Curious horn-shaped galls produced on a species of sumach are employed in India as an astringent in medicine, and to a limited extent in dyeing" ('Science Gossip,' December 1, 1865; fig.). I believe the 'Zoologist' wends its way to India once a month, and if this should meet the eye of any person there who could enlighten people at home about the insect which produces this gall, he would benefit Science by doing so. Galls from all parts, even from Japan, are largely imported to Europe for technical purposes: the little we know about "Kakra-Singhee" is just enough to excite our curiosity, and be it plainly stated we also want to know its value in a commercial and technical point of view.

Willows (Salix).—My collection contains at the present moment, on different species of British and European willows, Dipterous galls, including willow roses, nine; Hymenopterous galls, thirteen; Acarideous galls, three; but I would caution any one not to take this statement as representing the true proportions of the willow gall-makers in Europe, as only three countries have as yet contributed their quota, *viz.* England, Germany and Switzerland, and even these three are but inadequately represented. From the numerous, to my knowledge (as far as Great Britain is concerned), undescribed willow-galls, I select for mention in this paper only one, as its occurrence demonstrates a striking case of protective resemblance. The gall I refer to is found on the dwarf willow (*Salix herbacea*). It is of the shape of a berry, reddish, and Mr. Armistead informed me that he found it abundantly at Allonby, Cumberland, growing among the cranberry plants, bearing fruit at the time: he met with it twice in August, 1865, and again in the same month in 1867. (Nematus ——— ?)*

It will be evident to every naturalist who will condescend to peruse these hasty notes, that doubtful points innumerable will have to be cleared up ere the life-history of the insects inhabiting these galls can be written: happily we are not everywhere so far behind, as complete biographies of many a little denizen of these "fairy palaces" are already penned; but even the numerous queries here advanced are only a small part of the number still in store, so it is to be hoped that as within the last few years the snow-ball of truth-seeking in this field has again been set in motion in this country, it will roll on, increasing in strength and power, and that plenty of shoulders will be found anxious to push it on, when it will have grown, as it almost has, too cumbersome for the few hands it has hitherto occupied.

ALBERT MULLER.

Penge, S.E., March, 1868.

Something about the Cuckoo (Cuculus canorus).

By T. R. ARCHER BRIGGS, Esq.

WE live in a world of change truly, and it is wondrous to mark how in this nineteenth century all the opinions of our grandsires, whether on Theology, Natural History or any science whatsoever, are doomed to be turned topsy-turvy by the theories of this enlightened age.

The Rev. Alfred Charles Smith, in his paper on the cuckoo in the 'Zoologist' for March, combats an established opinion, by telling us that the famous Dr. Jenner has led many into error by having stated that it is the *young* cuckoo that removes its foster-brethren from the nest in which it is hatched, and affirms that it is the *parent* cuckoo that does this. As regards this opinion I would observe that Mr. Smith is at issue with Colonel Montagu, as well as with Dr. Jenner, since that distinguished ornithologist tells us, in his 'Ornithological Dictionary' that he agrees with that gentleman in respect to the phenomenon of the infant bird throwing the eggs or young out of the nest, and adds that he had ocular proof of the fact, for he saw a young bird of this species repeatedly throw out a young swallow when this was put in for the purpose of experiment. What I witnessed on the

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* Since writing the above, I have been informed by Mr. M'Lachlan that Mr. Inchbald has bred this insect, but I cannot yet give more particulars.

9th of July last on Crownhill Downs, recorded in last year's 'Zoologist' (S. S. 914), makes me assert most positively that these ornithologists of the past were correct when they stated that it was the little cuckoo that expelled from the nest the eggs or young of the bird that had hatched it. It is useless for even a Waterton to talk of a thing as impossible when facts show the contrary to be the case.

The habits of the cuckoo are so remarkable and mysterious that everything that tends to throw light on them seems worthy of record; consequently I append to the above remarks some particulars respecting a tame bird of this species that I kept for more than twelve months. It was procured from a labourer at Lipson, near Plymouth, on the 26th of June, 1858, and on the same day I undertook the charge of it. Although not sufficiently fledged to be able to fly, it was, even then, fierce and pugnacious. I fed it on meat, both raw and cooked, and on a paste composed of soaked bread and yelk of egg, on which it throve so well as to be able to fly and hop by the end of the first week in July, when it showed impatience at being confined, and a desire to escape from its cage, but no fear of anyone that it was accustomed to. When let out into the room it often endeavoured to get out through the glass of the window, and its restlessness, especially in the evening, was quite tiresome. In one of my note-books, under date August 16th, I find the following entry, "Cuckoo will now peck at a caterpillar." It was extremely fond of the larva of the "buff-tip moth" (*Pygæra bucephela*), and when one of these was given it, it would generally pass it through its bill, take it by one of the extremities, violently shake it to empty the stomach of its contents, and then eat the dead insect.

A part of the time I had the bird it was allowed the range of a lumber-room. Among the records of my pet appears the following particulars:—

September 21. Cuckoo very restless, sometimes when it is moonlight endeavouring to get out at the window. No doubt the migratory instinct affects it.

October 22. Still alive and well, has a peculiar way of snapping its bill together, apparently in anger, or as a sort of menace: generally when I give it water reluctant to drink it.

October 29. Anxious to have its bill clean, frequently wiping it against its perch, or anything that may be near. Still restless at times and fed by hand.

About the middle of November it was very restless by candle-light, and frequently would flap its wings and fall or flutter off its perch.

November 20. Pecks sometimes at its meat when on the stick.

November 25. Much quieter than it was last week, and very voracious; seems in good health, not unfrequently pluming its feathers, which in colour much resemble those of the woodcock.

November 28. Again restless between nine and ten o'clock in the evening.

January 25, 1859. Cuckoo beginning to moult, still restless during the early part of some nights.

February 8. Some of the new feathers expose their fibrous ends.

February 12. Astonishes us by making a loud shrill noise in the evening by candle-light, something like the laughing note of the green woodpecker.

February 18. Much less restless to-night, as also for one or two previous ones. New feathers out on the back, of a nearly uniform slaty blue colour. Now generally feeds itself by taking meat with egg, or meat alone, from my hands or the bars of its cage; but sometimes descends to the bottom to pick up pieces of food. Very fond of the black beetle, which before eating it generally softens by passing through the beak.

February 24. Rather restless this evening; frequently picks meat with egg, and Blattæ up from the bottom of the cage. I never put any water in it, but generally add this to the meat and egg, when I mix up the food.

March 14. Although it eats black beetles, I have never seen it cast up any portion of them in the manner of hawks and owls. Much of the new plumage out on the back and breast, but many of the old feathers still in the wings, some at the back of the head, and on the higher part of the breast. A large new quill-feather in one of the wings. Still fond of Blattæ, descending to the bottom of the cage to feed on them; they and raw meat now constitute its principal food. Still restless some evenings.

April 28. A mouse having been caught last night I gave it to my cuckoo, which took it in its bill, shook it several times, and appeared to regard it quite as an edible article. On its being divided it ate portions of skin, fur, bones and flesh, and from its manner I think it likely that it would swallow a small mouse if it had the opportunity.

Has not yet changed all its wing-feathers. Is pugnacious towards some, snapping at their fingers, elevating its wings, and saying "cuc, cuc;" manifests fear of others, and when it sees a cat on the garden-wall, or any unusual object at a distance, depresses its feathers, and with its bright eyes anxiously watches the thing that has engaged its attention. I have never seen it cast up any of the more indigestible portions of its food in the manner of predatory birds, although, before it was accustomed to feed itself, it would sometimes eject from its throat a pellet of food given it from the stick with considerable force, by shaking its head and neck. It has never drank of its own accord, but it sometimes has its food moistened with water, and when it was fed by hand I occasionally gave it water from a finger, but certainly with it water does not appear a necessary of life.

May 15. Called "cuckoo" in the evening.

July 15. Cuckoo called as it has done on a few previous occasions.

When not at large in a lumber-room this pet was kept in an osier-cage, in a parlour, or some other warm room, and frequently on winter nights a cloth was placed around its cage to keep off the cold, and as a further precaution one of its perches was bound round with flannel. It frequently plumed its feathers, and on being placed in the sun would droop its wings, and appear to much enjoy the heat. It sometimes hopped from perch to perch, but frequently remained for a long time on one at the top of the cage. Sometimes it would spring up and cling on with its tenacious claws and feet to the higher parts of the cage, and then fall quite to the bottom, often, whilst it was moulting, in this way breaking its new quill-feathers, and making them bleed, if not fully developed. This was a constant source of annoyance to us, and doubtless of pain to our restless, dissatisfied and impatient pet—such, in truth it was. Its restlessness was probably indirectly the cause of its death, for one day I found it in its cage, with the skin of its head so fearfully torn that I thought it best to kill it by pulling off its head—such was the ignominious end of my poor cuckoo. I cannot say it was very much regretted, as, although it had never known liberty, it always seemed to feel itself a captive, notwithstanding the pains we took to make it comfortable, and the regard we showed for it.

J. R. ARCHER BRIGGS.

4, Portland Villas, Plymouth,
March 26, 1868.

Birds occurring in Leicestershire in 1868.

By THEODORE C. WALKER, Esq.

Goldeneye Duck and Pochard.—In January a fine specimen of the goldeneye duck was shot on the fish-pond at Ulverscroft Priory, on the estate of the Earl of Stamford and Warrington; a pochard was also shot at the same place, where specimens occur nearly every winter: this place is in the very centre of England.

Green Sandpiper.—A specimen of this winter visitor was shot in a ditch by Martinshaw Wood, near Ratby.

Gray Phalarope.—A specimen in winter plumage was killed by striking against the telegraph-wires near Leicester.

Bohemian Waxwing.—A very fine adult male was shot at Arnsby, by a farmer, while feeding on a hawthorn-bush during severe weather.

Great Spotted Woodpecker.—An adult male was shot at Bosworth, near the battle-field, on the estate of Sir A. B. C. Dixie, Bart.: this bird is of not unfrequent occurrence in some of our largest woods, as Buddon, Martinshaw, Steward-Hay, &c., but being very shy is seldom seen.

Hawfinch.—A specimen was shot, in the beginning of April, at Belvoir Castle. Birds of this species occur annually about the woodlands of Anstey and Bradgate Park.

Little Bittern.—A specimen of this rare winter visitor * was shot at Billesdon Coplow in January.

Bittern.—A splendid specimen was shot in the snipe-ground of Groby Pool in March. I am told that it is twenty-five years since the last was shot in the county, at Bradgate Park.

Merlin.—A specimen, in immature plumage, was killed a few days since, by dashing at the window of a house in Leicester, causing great consternation to the occupants. An adult bird was shot on the farm of Messrs. Spencer, in this county.

Peregrine Falcon.—I have just seen a splendid adult female at our taxidermists, Messrs. G. Stuart & Co., killed at Weston-super-Mare: an egg ready for extrusion was found in the ovary: the egg is very beautifully coloured.

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* [I have a great aversion to making any criticisms on the communications I receive, but I think the term "winter visitor," as applied to the little bittern, is rather assuming a fact before it is established. My own opinion does not coincide with Mr. Walker's, in considering this rare bird a winter visitor.—*E. N.*]

Kittiwake.—Several specimens have been found dead from starvation in the fields about Earl-Shilton, which is about the very centre of England. A specimen was shot at the West Bridge, in Leicester, during March.

Water-fowl at Groby Pool.—Having ridden over to Groby Pool, a sheet of water of about forty acres, with a marsh adjacent (about five miles from Leicester), I had a good opportunity of watching the habits of some of the water-fowl. I observed a pair of hooded crows flying over Steward-Hay Wood: this is the latest I have observed this species in the county, as they have mostly all departed for the North by this time. As I cautiously approached the boat-house, several mallards and ducks rose from the sedge, and a heron got up and flew slowly farther up the marsh: herons are uncommon in this county, owing to the absence of water. Five or six pairs of teal got up from the rushes and flew overhead with a curious whistling note, not very unlike the cry of the plover. Having carefully hidden behind the reeds, I peeped out over the pool, and was surprised and delighted to see two pairs of beautiful great crested grebes tranquilly floating twenty or thirty yards from me: a pair have visited Groby Pool for the last two or three seasons, as they are strictly preserved. With my glass I could see distinctly the colours of their feathers, and even the twinkling of their bright eyes. The male is considerably larger than the female. The bill, sharp as a spear, is seemingly of a greenish horn-colour; the crest or occipital feathers black, and lying backwards on each side of the head, as in Yarrell's figure; the gular feathers of a rich rufous colour, and the breast of a satin whiteness; the back and wings of a brownish ash. The female has the red on the neck scarcely perceptible. Inquisitive at my approach, they swam backward and forward quite close, the male and female swimming side by side, the female occasionally nodding her head, after the manner of the gallinule: swimming off a little way, the male chased his mate, on which she rose on wing for a few yards, close to the water, and came down tail foremost, and falling forward ploughed up the water with the impetus; then coming close to one another they erected their crests at right angles straight out, and emitted sounds like a low cough uttered very quickly. After watching them a little longer, they separated and commenced diving, gently gliding under without a ripple, and remaining under a considerable time, and on emerging came up head first as gently as they went under: these birds leave us in the winter. The coots were very clamorous, clanking and calling and chasing one another on the water and among the reeds, ruffling up their feathers, and putting their heads down and tails up: I observed a pair of birds, either coots or gallinules, flying high up over the water in wide circles. The courtship of the gallinule was going on, the male chasing his mate on the island among the reeds and on the water, with head drawn close up and on a level with the water, the female moving her head backward and forward, and jerking her tail and expanding it. But the sun having set, as the evening shades gathered round the pool, quantities of pied wagtails came flitting to the trees above me, and as their companions arrived they joyously flitted out a few yards to meet them, welcoming them with a pretty little song, not unlike a portion of the pipit's song: I had never heard them utter any other than their ordinary chirping notes: gradually they settled down to roost on the bushes of elder and on reeds, twittering the while, but whenever a rook made his appearance, on his way home to the rookery close by, the whole flock rose and chased it till some distance off, twittering the while in great anger.

Rookery at Great Stretton.—Being anxious to procure some rooks' eggs for my collection, I rose before five on the morning of the 1st of April, and after a walk of five miles reached the rookery at Great Stretton, before the sun had dispelled the thick mist which hung over the valleys. The rookery is a small plantation of ash-poles of about three or four acres, with a few larger trees in it. To my astonishment the nests are built on the ash-poles, not more than fifteen or twenty feet from the ground. On my approach the whole cloud of rooks rose from their nests and flew high overhead, uttering dolorous cawings. The nests were composed of the usual materials—sticks and twigs, interwoven and lined with fine hay, &c. The eggs in each nest were mostly five or six, and they varied a good deal both in size and colouring; one is like a jackdaw's, only lighter, while another is very darkly speckled with olive at the thick end. In the beginning of spring last year a colony of rooks built in an ash-pole plantation half-a-mile from Leicester, and when the eggs were all laid, the gamekeeper pulled down all the nests, since which they have deserted the place.

Arrival of Summer Migrants.—April 18. During the past week a cold east wind has prevailed, and the many summer migrants which have arrived have kept mostly concealed, and have sung very little. I first heard the chiffchaff on the 3rd of April singing in a sheltered corner of Shethedges Wood, and the garden warbler and the wheatear on the 7th.

Widgeon.—In passing Groby Pool, on the 18th of April, I saw three pairs of widgeon rise from the sedge, and each pair flying by itself, sailed round me overhead, uttering a succession of whistling notes, as they do in the breeding season: they have most likely a nest near, although they have not been known to breed in the county that I am aware of.

Snipe.—I flushed several snipes from the swamps, on the 18th of April, which is rather late for them to remain here.

Swallow.—On the 18th of April I saw three or four swallows flying low over Groby Pool and the marshes: they were first noticed on the 13th: they are always seen about the pool before visiting the town. I see by my note-book that I did not observe them till the 13th of May last season.

Yellow Wagtail.—April 18. The yellow wagtail has arrived here in the damp meadows.

THEODORE C. WALKER.

Woodside, Leicester.

A Season's Collecting of Land and Freshwater Shells in West Sussex.

By W. JEFFERY, jun., Esq.

IN the 'Zoologist' for July last (S. S. 873), Mr. William Thomson expressed a wish for a list of Sussex shells, and as this has not yet appeared, it may not perhaps be out of place on my part to offer a list of shells found by myself in this neighbourhood last season, together with a few remarks on the same. Mr. Thomson writes, "Beech woods and their vicinity are not generally regarded as prolific collecting-grounds by conchologists," but I have found as many as nine species on beech trees, in addition to those mentioned by Mr. Harting (S. S. 760), *viz.* Helix hortensis, lapicida, caperata, virgata and rotundata, Bulimus obscurus, Pupa cylindracea, and Clausilia bidens and nigricans. Were I in want of specimens of H. lapicida, B. obscurus, C. bidens or nigricans, I know of no place near here where I should be so likely to find them as in a certain beech wood. Indeed it has always appeared to me that the Clausiliæ were intended by Nature to live in the vicinity of beeches, such a resemblance have these shells in shape and colour to the long leaf-buds of the beech. I am not stating this as an attack on Mr. Thomson's remarks, but merely to show that beech woods on a chalk soil are not altogether to be despised by the shell-collector. But to my list.

1. Cyclostoma elegans. Occurs plentifully on dry banks in a chalky soil.

2. Bithinia tentaculata. Common in our running streams.

3. Valvata piscinalis. As the last-named.

4. Vitrina pellucida.

5. Zonites cellarius.

6. Z. nitidulus.

7. Z. lucidus.

8. Helix aspersa. Far too numerous in our gardens.

9. H. hortensis. Generally distributed. Numerous in most of our hedge-rows in the lowlands, and several varieties occur, including a clear yellow and a pink, both destitute of markings.

10. H. nemoralis. Found on the downs amongst juniper-bushes and furze. A pink-coloured banded variety is sometimes found in woods, but is not numerous.

11. H. obvoluta. Have not yet met with this species in a living state, but have found untenanted shells on a chalky bank near the downs.

12. H. lapicida. Found in tolerable plenty on the stems of beech trees. We have no rocks.

13. H. caperata. Generally distributed, but not numerous.

14. H. virgata. Plentiful on the chalk downs, but there it attains no great size, seldom exceeding three-eighths of an inch, while in the lower and cultivated ground it reaches three-fourths of an inch in diameter. The only variety is a dull creamy-coloured shell, with the purple lip distinct.

15. H. ericetorum. Also pretty numerous on the downs; as a rule, of small size, but in certain parts growing to nearly an inch in diameter.

16. H. cantiana. In this district our most common shell; every hedge abounds with it. Clear white examples have occurred to me, though rarely. With Helix carthusiana I am unacquainted, and do not think it is to be found in this immediate locality, although it is given as a Sussex species.

17. H. rufescens. Common in gardens and hedge-rows.

18. H. hispida. Is found sparingly on dry banks. I am in doubt about a species which I find in plenty in some marshy meadows: it appears to me a higher shell (more raised) than H. hispida, rather thicker in substance and more glossy in appearance, is generally depilous, but the young would seem to be hairy: whether it will

answer to H. depilata I am undecided, but hope to pay more attention to the *animals* during the coming summer.

19. H. rotundata.
20. Succinea putris.
21. Bulimus obscurus.
22. Zua lubrica.
23. Pupa cylindracea.
24. Clausilia bidens.
25. C. nigricans. These two Clausiliæ, together with Bulimus obscurus, are commonly found, as I have said before, on beech trees, seldom in other places. C. bidens is very numerous in a plantation of beech on the downs; I could collect almost any number after a summer shower.
26. Limneus auricularius. I am uncertain about the identification of this species.
27. L. pereger.
28. L. palustris.
29. L. trunculatus. Scarce.
30. Planorbis carinatus.
31. P. contortus.

Of the bivalves I cannot say much, having noticed two species only, Cyclas cornea and Anodon cygneus.

After another season I hope to have many additions to make to this list.

W. JEFFERY, JUN.

Ratham, Chichester, March 20, 1868.

Superstitions concerning the Liver of the Otter and Bear.—Many years ago I was told by a gamekeeper, a native of a parish in Norfolk, where otters were at that time frequently met with, that it was universally believed in that locality that the liver of an otter was divided into a number of lobes, equal to the number of years during which the animal had lived. In recently reading Dr. A. L. Adams's very interesting volume, intituled 'Wanderings of a Naturalist in India,' I was surprised to find, at page 184, that a similar opinion was held by the doctor's "shickaree" respecting the liver of the "isabella or brown bear of the Himalaya." So singular a coincidence is, I think, worthy of record, and I therefore communicate it for the pages of the 'Zoologist.'—*J. H. Gurney; March* 31, 1868.

Peregrine Falcon at Hareland: Parasitical Worms.—Towards the end of December last an adult male peregrine falcon was obtained at Hareland, and sent to me for preservation: it was a very small bird, the smallest I had ever seen. The principal measurements were—

Bill (including cere), on the curve of upper mandible	1¼ inch.
Total length, beak to tail, inclusive	16 inches.
Tip to tip of fully extended wings	37 „
Wing, from carpal joint	12¼ „
Tail, tip to root	6½ „

The bird was in a very poor and apparently starved condition: the plumage, however, was good. Excepting a little blackish matter, its stomach proved empty, and on the outside surface I found a mass of thread-worms, about eight or nine in number; they were coiled up together and lying loosely upon the surface: the longest worms measured as much as five inches and a quarter in length.—*T. E. Gunn; 21, Regent Street, Norwich.*

Thrush singing while Flying.—One evening last spring a thrush pitched upon the top of a tree close to me, and, for several yards of its flight before it settled, it sang quite loudly, continuing its strains without interruption for some time afterwards. I never before noticed nor heard of this habit.—*Henry P. Hensman; Northampton, March* 27, 1868.

The Nightingale.—I heard the nightingale for the first time on the 4th of April and again on the 6th, which I imagine to be very early, as the usual time with us is the 15th.—*Augustus H. Smith; Flexford House, Guildford, April* 11, 1868.

Robins nesting in Letter-boxes.—This season a pair of robins have built a nest and hatched their young in the letter-box of Mr. Hill, nurseryman, of Newmarket Road, Norwich. The nest has been built just below the aperture for receiving the letters, but the little birds do not at all seem to mind the daily disturbances necessarily made by the intrusion of letters or the emptying of the box: this is the third season this pair of robins have successively occupied their strange habitation. I remember a similar instance, about five years since, when I saw the nest with the female sitting on her eggs in an old letter-box belonging to a gentleman in the parish of Lakenham, in this city, and, notwithstanding our inspection, the bird still remained faithful to her charge, apparently quite fearless. The gentleman had taken particular pains to preserve his little favourites, and kept the box exclusively for their use: he informed me that the same birds had occupied their strange nesting-place for several successive seasons.—*T. E. Gunn; April* 10, 1868.

Brambling breeding in Confinement.—During the course of last summer a pair of bramblings bred in the aviary of a gentleman in Norwich. Materials being supplied, in the shape of dried moss, &c., the birds constructed a nest in a small box that hung at one corner of the aviary: in the course of time the female laid four eggs and sat upon them several days, but leaving them they were taken away, when they proved to be rotten: I have one of the eggs now in my possession. Instances of this kind have been before observed, but I think their occurrence rather unusual.—*Id.; February,* 1868.

Pied House Sparrow in Worcestershire.—The following is extracted from a letter received lately from Mr. J. S. Gibbons:—"I shot a male house sparrow during the summer of 1866, which was almost entirely white on the wings and had several white feathers in its tail: I killed it while it was sitting, in company with two common sparrows, on some railings by the railway, near the Stourport Station, Worcestershire." Another friend tells me that he killed an albino blackbird near Richmond, Yorkshire, during the winter of 1866-7.—*Alexander Clark-Kennedy; Eton, Bucks, March* 13, 1868.

Arrival of the Wryneck.—On the 5th and again on the 9th of March the wryneck was heard in Great Bealings: it was not heard here last year earlier than the 17th of April.—*E. C. Moor; Great Bealings, Woodbridge, Suffolk, March* 23, 1868.

Wryneck heard.—I was rather surprised, this morning early, to hear and see a wryneck: I watched the pretty little bird for a considerable time. Is it not unusually early for them to make their appearance?—*Edward Sweetapple; Cone Mill, Lydney, Gloucestershire, March* 27, 1868.

Chough in Somersetshire.—Two of these birds made their appearance at Bagborough, a village at the foot of the Quantoch Hills, not far from Taunton. My informant gave me the following account:—"They were shot on the 1st of April; they were at that time on the grass in front of the stable-yard, apparently feeding; but I hear they had been seen for a few days previously about the church porch and tower, as if going to build there, and seemed very tame for wild birds. I confess I was very sorry to hear of the poor birds being shot." With this latter sentence I quite agree, as I think there can be very little doubt but they would have bred there, more especially as there are no jackdaws there to molest them, those birds having all been destroyed by the predecessor of the gamekeeper who shot the choughs. I obtained the body of one of them from the birdstuffer, as I wanted the breast-bone: on examining the gizzard I found seven or eight oats, which the bird had no doubt picked up near the stable, some grubs, and some half-digested hard brown skins, which I think were those of earwigs, but I could not be quite certain.—*Cecil Smith; Lydeard House, Taunton, April* 13, 1868.

[Since the sad event recorded above, the following note has appeared in the Taunton papers. St. Audries is about eight miles from Bagborough, where the choughs were killed.—*E. Newman.*]

A Word for Choughs.—I see, under the head of "rare birds," in your impression of the 11th inst., that two choughs were killed a few days ago in the neighbourhood of Taunton. I should feel much obliged to you if you would state in your next journal that these birds had paired and strayed away from St. Audries, where I have for years kept a few, hoping that they would breed, and that thus this interesting and rare bird would again become naturalized on our coast. My neighbours for miles around have kindly assisted my endeavours by sparing my choughs, and I am sure I have only to mention that any choughs which may be seen about the county are pet birds which have taken a long flight from their home, to induce all gentlemen to preserve them. The chough may be easily distinguished from the commoner species of the pie kind by its purple-black plumage, its bright red legs and beak, and its peculiarly wild cry.—*Alexander Acland Hood; St. Audries, Bridgwater, April* 13, 1868.

Colour of Cuckoo's Eggs.—I have eight cuckoo's eggs in my collection, some of which were laid in the nests of reed and sedge warblers, and they exactly agree in colour with the eggs of the foster-parents.—*John A. Harvie Brown; April* 2, 1868.

Swallows.—In Sweden the swallows, as soon as the winter begins to approach, plunge themselves into the lakes, where they remain asleep and hide under the ice till the return of the summer, when, revived by the new warmth, they come out and fly away as formerly. While the lakes are frozen, if somebody will break the ice in those parts where it appears darker than the rest, he will find masses of swallows,—cold, asleep and half dead,—which, by taking out of their retreat and warming, either with his hands or before a fire, he will see gradually to vivify again and fly. In other countries they retire very often to the caverns under the rocks: as many of these exist between the city of Caen and the sea, on the banks of the Orne, there are found sometimes during the winter piles of swallows suspended in these vaults, like bundles of grapes. We have witnessed the same thing in Italy, where, as well as in France, it is considered very lucky by the inhabitants when swallows build nests on their habitations.—*Morning Advertiser*, *February* 4, 1868. [When will this fable be forgotten?]

Woodcock killed by Telegraph-wires.—On the 12th of March a woodcock was found under the telegraph-wires about a hundred yards from the Bealings Station of the Great Eastern Railway: its head was nearly severed from its body.—*E. C. Moor.*

White Woodcock in the North of Yorkshire.—On the 15th of December, 1867, I received for preservation a beautiful variety of the woodcock, which I was informed had been shot, two or three days previously, somewhere in the North of Yorkshire, by one of a party of gentlemen engaged in grouse shooting. The whole of the upper parts of its plumage are white, suffused with a pale ash-gray tinge, the bars and markings being of a very pale rufous hue, and the broad transverse bars on the crown of its head of a pale brownish gray; the under surface of plumage white, the usual transverse bars being of the faintest water-markings, indeed scarcely distinguishable; iris same colour as the ordinary examples; bill and legs somewhat paler. On dissection it proved to be an adult female.—*T. E. Gunn.*

Spring Moulting of the Jack Snipe.—Jack snipes still appear on our Moors, and they were observed in considerable numbers last week, or rather this week, commencing March 30, on the marshes in the Moors around Kilmar. It may not be generally known that this snipe moults all its tail-feathers simultaneously at this season of the year. I received a specimen this day from my nephew, who first called my attention to the fact. On examining this specimen the entire new tail was "sprouting," and had grown about three-quarters of an inch, the bases of the feathers being, of course, in a succulent state. I am not aware whether this character is confined to this species, but I mention the fact as new to me.—*Edward Hearle Rodd; Penzance*, *April* 4, 1868.

Bittern breeding in Norfolk.—The bittern was formerly a rather common resident in Norfolk, and in the time of Sir Thomas Browne bred in some numbers in our Fens and Broads, but of later years the species has become more scarce, its visits being almost exclusively confined to the winter season. Very few are the instances of its occurrence in the summer; in fact, so rare has the nesting of the bittern become of recent years that standard authors, such as Yarrell and others, cannot give more than three well-authenticated instances of its breeding in Great Britain, and in two of these cases the young had been hatched; in the third instance a single egg was obtained at Ranworth, in Norfolk, and it is this latter specimen that the Rev. F. O. Morris, in his work on the 'Eggs of British Birds,' has figured in his plate (vol. ii. p. 147). Seeing, then, that the nesting of the bittern is of such rare occurrence in Britain, it may prove somewhat interesting to the readers of the 'Zoologist' to learn that a nest containing two beautiful fresh-laid eggs was taken, on the 30th of March last, in the neighbourhood of one of our Broads. I have fortunately succeeded in purchasing both the eggs for my own collection, and while still in the yelk I exhibited them at the Meeting of the Norwich Naturalists' Society, held on the 6th of April. The old birds had frequently been observed for some time past in the vicinity of the Broad by a labouring man residing near the spot, and who, from their appearance and manners, imagined they had nested, or were preparing to nest, in that locality: his surmises proved to be correct, for on the day stated above he found the nest containing the two eggs only. This date I think unusually early for the breeding of the bittern: on this point, however, I am not certain, neither Yarrell nor Morris giving the slightest information as to the time of their nesting. The nest, as is usually stated by authors, was composed of reeds and sticks. The eggs are of a uniform pale brownish colour, a shade or two darker than the usual hue of the common pheasant's egg, but the shell is not of that glossy surface, the texture being somewhat coarser. One egg is a trifle larger than the other, and presents a beautiful oval form; the other tapers more at the ends, particularly at one end. Their respective measurements are as follows:—*first*, 2 inches 3 lines in length by 1 inch 7½ lines in diameter; *second*, 2 inches 3 lines in length by 1 inch 6½ lines in diameter.—*T. E. Gunn; April* 10, 1868.

Eider Duck on the Essex Coast.—A fine specimen of the male eider (*Anas mollissima*), in immature plumage, was shot in the last week of December, 1867, at Mersea, and has been added to my collection. This bird, so common in the North of Scotland, is rare in the South. I have never before met with it, or heard of its being captured, on the Essex coast. The bird in its first winter's dress is very different from that in the summer adult livery, and the naturalist is sometimes puzzled to distinguish it from its near ally, the king duck (*Anas spectabilis*). Temminck tells us that the females of the two species are alike; but Degland has pointed out that the female king duck is of a redder brown, the beak shorter, and the feet yellow instead of greenish black. In my bird dissection, displaying the bony labyrinth, told me that my specimen was a male, and I had no difficulty in referring it to the eider, although the measurements were the same as those of the female king duck in my collection, allowing for the difference in a dried and fresh skin; but the feet and legs were blackish green, the web nearly black, and the plumage altogether of a darker brown, quite distinct from the rich red-brown of the female and young male king duck.—*Dr. Bree, in the 'Field' Newspaper.*

Great Northern Diver near Birkenhead.—On the 9th of April, while on a visit to General the Hon. Sir Edward Cust, at Leasowe Castle, near Birkenhead, I sallied forth along the shore towards Hoylake, and after I had passed the town and arrived opposite Hilbre Island I was surprised to see a great northern diver swimming leisurely in the shallow water about a couple of hundred yards distant from the shore. Although I had a gun with me, I was armed with a far better weapon—a pair of opera-glasses, which have seen service in Africa; and by their means I was enabled to observe the bird to great advantage. The second week in April is a late date to see a northern diver so far South.—*A. Clark-Kennedy.*

Blackthroated Diver at Lowestoft.—A male of the blackthroated diver was shot on the 14th of January last, on the coast in the vicinity of Lowestoft, and on the following day was forwarded to me to preserve for a gentleman residing in that town. The bird was apparently assuming the adult plumage, numerous square white spots appearing on the feathers of its back, wings and upper wing-coverts. Some of the black feathers of the throat, and the black and white striped feathers of each side of the neck, were also making their appearance. The following are the dimensions:—

Total length, beak to tail, both inclusive - - -	30 inches.
Tip to tip of fully extended wings - - - - -	50 „
Wing, from carpal joint to tip - - - - -	13 „
Bill: tip to base - - - - - - - - -	$2\frac{3}{8}$ „
„ tip to gap - - - - - - - - -	$3\frac{7}{8}$ „

Neither Yarrell nor Morris gives the weight of specimens of the blackthroated diver: the one here recorded weighed just five pounds. The stomach contained some fish-bones, scales, and part of a small roach.—*T. E. Gunn.*

Iceland Gull off Brixham.—I have just seen a nearly adult specimen of the Iceland gull at the shop of Mr. Jacobs, birdstuffer, Newton Abbot. Mr. Jacobs informs me that he shot the bird from a boat off Brixham, on the 23rd of March, and that it was in company with a flock of herring gulls.—*J. H. Gurney; March* 26, 1868.

Picked Dog-fish with Coralline attached.—On the 18th of March a picked dog-fish was brought to me: it was a female, heavy with young, of full age, and apparently healthy: its peculiarity was that with its root or base under, and clinging all round the spine of the second dorsal, there was a healthy growing specimen of the sea-hair coralline (*Sertularia operculata*). The coralline had several branches, and was about four inches long: it was growing so firmly on the spine that I could not remove it without destroying the root.—*Thomas Cornish; Penzance, March* 21, 1868.

Salmon Peel at Penzance.—Salmon peel have this week been taken in drift-nets, several leagues south of the Runnel-stone—that is, in the open sea in deep water: I have not seen the fish myself, but I can rely on my information.—*Id.; March* 28, 1868.

Boar-fish near Penzance.—A small but very perfect specimen of the boar-fish (*Zeus aper*) was brought to me on the 11th of March. It was picked up dead on the beach at Sennen Cove, near the Land's End. This cove is near the Runnel-stone, at which place a large number of these little fish were taken by a trawler some years ago.—*Id.; March* 22, 1868.

Boar-fish at Whitsand Bay, Land's End.—Through the kindness of Mr. J. Symons, of Mayon, I have received another specimen of the boar-fish, found washed ashore this week at Whitsand Bay, Land's End. It is of importance, because its diminutive size authorizes the belief that it was hatched in our seas. It measures over all one inch and five-eighths; eye to fork one inch and one-eighth; in depth, without fins, six-eighths of an inch, and including fins one inch and one-eighth; head, from the extremity of the snout to the posterior edge of the operculum, four-eighths of an inch, of which the nearly circular orbit of the eye occupied a space of no less than seven thirty-seconds of an inch. In this extraordinary size of the eye and in a well-defined black spot at the upper base of the caudal-fin it differs from Zeus aper, as described by Yarrell and Couch; but as in all other respects, including colour, it agrees with their description, I am inclined, considering its size, to treat it as an immature specimen of the genus with which we are already acquainted. Corystes Cassevelaunus has already been brought to me: its appearance is early.—*Id.; March* 28.

Food of the Cod.—In the stomach of a cod-fish caught near Hoylake, in Cheshire, on the 4th of November, 1864, were the following:—one small ray, six small whiting, four soldier-crabs in whelk-shells, one small crab, thirty-nine flounders, one periwinkle, one whelk *minus* the shell, one doris (or sea-mouse), making a total of fifty-four fish. Does the food of this fish usually vary so much as this? Perhaps some other readers of the 'Zoologist' can supply further particulars as to the "bill of fare" of the cod.—*A. Clark-Kennedy.*

Scyllarus arctus off Penzance.—On the 7th of January last I had brought to me no less than three specimens of Scyllarus arctus: they were taken from the stomach of a common cod, which was caught about two miles off shore in the bay here: all three were in good condition, and I have preserved them. In the same cod-fish were three specimens of Galathea strigosa, two in good condition, the third having its shell softened by digestion. I judge from this that the sound specimens had been captured by the cod very shortly before it was itself taken.—*Thomas Cornish; March* 21, 1868.

Extracting Molluscous Animals from the Shell.—I shall be very glad to be informed by some of the correspondents of the 'Zoologist' of the best mode of extracting the animal from small shells, without injuring the colour of the shell.—*James Murton; Silverdale, Lancaster, April* 22, 1868.

PROCEEDINGS OF SOCIETIES.

ZOOLOGICAL SOCIETY.

March 12, 1868.—GEORGE BUSK, F.R.S., V.-P., in the chair.

The Secretary exhibited a monkey which had been brought by Mr. Monteiro from Cabinda, West Africa, and which had been named, by Dr. Gray, Presbytes albigena.

A letter from Dr. Peters was read with reference to the new rodent, Lophiomys imhausii, from Upper Nubia, lately described by M. Milne-Edwards.

An interesting communication was read from Professor Baird on the nestling plumage of the Californian vulture.

The Secretary read a letter from Dr. Cunningham, naturalist to the Magellan Straits Survey Expedition, relating to the Zoology of Fuegia and Patagonia.

Mr. Flower read a paper on the cetaceans Balænoptera Carolinæ and Physeter Sibbaldi, and came to the conclusion that these two species, which had been described as distinct, were probably identical.

The Secretary read a report from Surgeon Day, in which he described some new fishes from Madras.

A paper was also read from Captain Abbott on the seals of the Falkland Isles. It appeared that four species were found there, and the Secretary made some remarks on the determination of these species.

Dr. Gray read a synopsis of the species of pouched mice (*Saccomyinæ*) in the collection of the British Museum.

Dr. Gray also made some remarks on a supposed new species of badger from China, which he proposed to call Meles chinensis.—*J. E. H.*

ENTOMOLOGICAL SOCIETY.

April 6, 1868.—H. W. BATES, Esq., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—Hewitson's 'Exotic Butterflies,' part 66; presented by W. W. Saunders, Esq. Newman's 'British Moths,' No. 16; by the Author. 'The Zoologist' for April; by the Editor. 'The Entomologist's Monthly Magazine' for April; by the Editors. 'Proceedings of the Holmesdale Natural History Club, for 1866-67,' and 'Natural History of Reigate and its Vicinity: List of Coleoptera, Part 2;' by the Holmesdale Natural History Club.

Exhibitions, &c.

Mr. Stainton exhibited larvæ of a new species of Nepticula, sent from Mentone by Mr. Moggridge, where they were found in the leaves of Euphorbia dendroides. The perfect insect had been obtained from larvæ of the previous season, and would be described as Nepticula euphorbiella.

Mr. Stainton also exhibited the specimen which in 1854 he had described ('Insecta Britannica,' iii. 47) under the name of Nemophora Carteri; it was formerly in the collection of the late Mr. S. Carter, of Manchester (who, however, was unable to give any account of the insect or its place of capture), and had now passed into the possession of Mr. S. Stevens. Recent examination had convinced Mr. Stainton, and the exhibition of the specimen satisfied the other Lepidopterists present, that the supposed Nemophora Carteri was a fabrication, made by attaching the hind wings of a Cerostoma to the fore wings of a Nemophora.

Mr. W. C. Boyd exhibited a strongly marked variety of Stenopteryx hybridalis, captured in Hertfordshire.

Mr. J. Jenner Weir exhibited a Polyommatus captured at Lewes, which he regarded as a hybrid between P. Adonis and Alexis; also varieties of P. Corydon and Alexis, with confluent spots on the under side, and a male-like female of P. Alexis.

Mr. Druce exhibited a collection of butterflies collected by Mr. Pearson in Bolivia.

Mr. F. Smith mentioned that about September, 1866, Mr. Waring Kidd had sent to the British Museum a pollard oak, which was placed in a closed case in one of the galleries, for the purpose of showing the *modus operandi* of Cynips Kollari. In the spring of 1866 a numerous brood of Clytus arietis appeared in the case; they were observed running about the oak-stump for about three weeks, when, unable to escape, they died, and their remains were afterwards swept away. The same thing occurred in 1867, and in 1868, on the morning of the Meeting, the Clytus had made its third appearance. The large quantities of camphor placed in the Museum cases did not seem to affect them, or to prevent the development of the beetle.

Mr. Janson said that camphor, though useful in preventing the entry of insects, was powerless to destroy them: at the same time he doubted whether the Clytus had been reproduced in the Museum; the insect probably remained in the larva state for two or three years, and it was quite possible that all the larvæ from which the successive broods of 1866, 1867 and 1868 had appeared were present in the wood on its admission into the Museum in 1865.—*J. W. D.*

27 MA68

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The Fishes of Norfolk and Suffolk.—Since the publication of a previous letter of mine in the 'Zoologist' for 1867, requesting information on the fishes of Norfolk, I have determined to include those of the adjoining county of Suffolk. The two counties being so closely connected in many points of view, it would give me a better opportunity of making a more complete list: my Catalogue will, therefore, comprise the fishes of Norfolk and Suffolk. I have already collected a large amount of useful and interesting information, and shall be extremely obliged to any contributor to the 'Zoologist' for any notes of an interesting nature connected with the same, as I am desirous of making the Catalogue as complete as possible. Please address—*T. E. Gunn; 21, Regent Street, Norwich.*

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